

Claims

1. A method for preparing a protective layer for an aluminum-containing alloy of the Fe-Al, Fe-Cr-Al, Ni-Al or Ni-Cr-Al type using the following steps:

5 forming on the surface of the alloy an oxide layer exhibiting non-aluminum-containing oxides;

heating the alloy to temperatures to above 800°C such that the non-aluminum-containing oxides on the surface of the alloy inhibit the formation of metastable aluminum oxides and
10 substantially only α -Al₂O₃ oxides form.

2. The method according to claim 1 wherein a non-aluminum-containing oxide layer at a maximum thickness of 5000 nm, especially only 1000 nm, and especially advantageously only 100 nm, is formed.

15 3. The method according to claim 1 or 2 wherein at least one of the oxides among the group (Ni oxide, Fe oxide, Cr oxide or Ti oxide) is deposited on the aluminum-containing alloy so as to form a non-aluminum-containing oxide layer.

20 4. The method according to the previous claim 3 wherein the deposition is realized by vaporization and condensing or cathode sputtering.

5 5. The method according to claim 1 or 2 wherein for the formation of a non-aluminum-containing oxide layer, at least one metal among the group (Ni, Fe, Cr or Ti) is deposited on the aluminum-containing alloy, so that an oxide layer corresponding to the metal forms therefrom in an oxygen atmosphere.

 6. The method according to the previous claim 5 wherein deposition through vaporization and condensing, cathode sputtering or galvanic deposition is realized.

10 7. The method according to claim 1 or 2 wherein for the formation of a non-aluminum-containing oxide layer an aluminum-containing alloy is introduced into a chloride- and/or fluoride-containing medium, whereby a corresponding oxide or hydroxide layer forms at the surface of the aluminum-containing alloy from an alloy metal that is not aluminum.

15 8. The method according to claim 7 wherein an aluminum-containing alloy is introduced into the medium over a period of one minute to five hours.

20 9. The method according to claim 7 wherein the aluminum-containing component is introduced into the medium at temperatures between 30 and 100 °C.

 10. The method according to claim 1 or 2 wherein for the formation of a non-aluminum-containing oxide layer, the aluminum-

containing alloy is heated to a temperature below 800°C, especially a temperature in the 500 to 800°C range, whereby a corresponding oxide layer forms at the surface of the aluminum-containing alloy from an alloy metal that is not aluminum.